Volume 47 | Number 47 | 21 December 2018 | Pages 16815–17178

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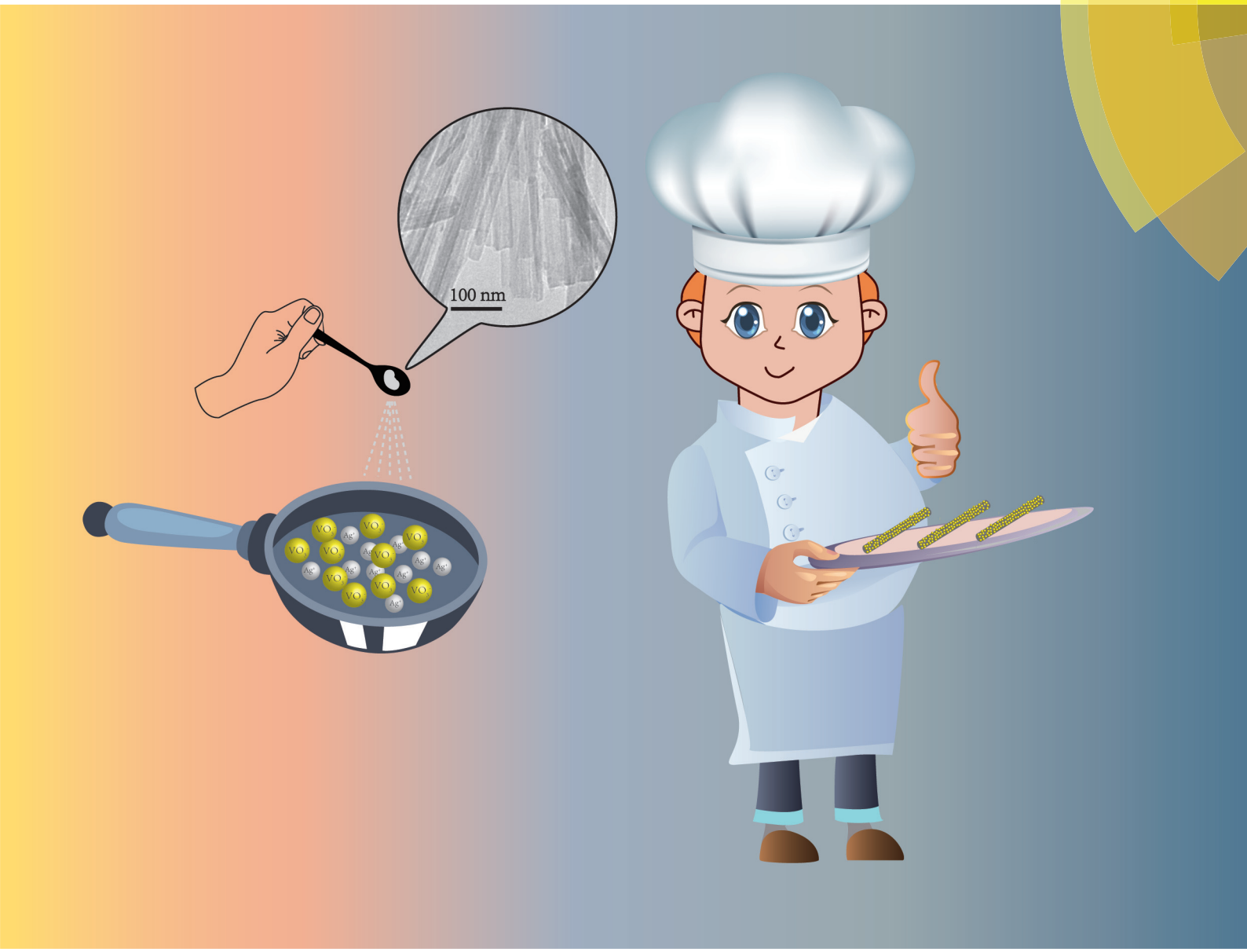

ISSN 1477-9226

ROYAL SOCIETY OF CHEMISTRY

PAPER

Shen-ming Chen, Xiaoheng Liu *et al.*

One pot synthesis of α-$AgVO_3$/palygorskite nanocomposites with enhanced photocatalytic activity using triple roles of palygorskite: supporter, dispersant and growth-directing agent

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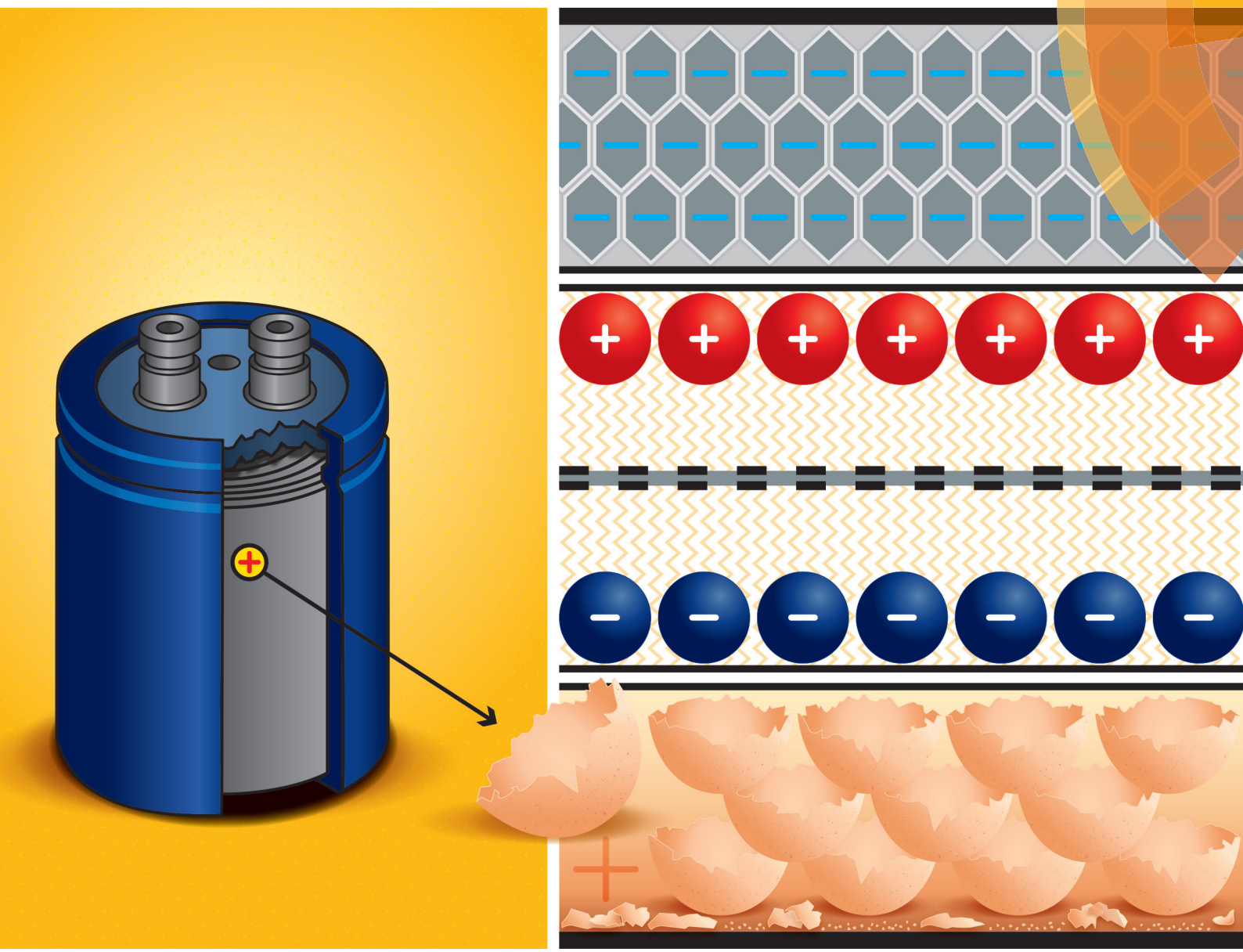

ISSN 1477-9226

ROYAL SOCIETY OF CHEMISTRY

COMMUNICATION

Manickam Minakshi, Maximilian Fichtner *et al.*

Bio-waste chicken eggshells to store energy

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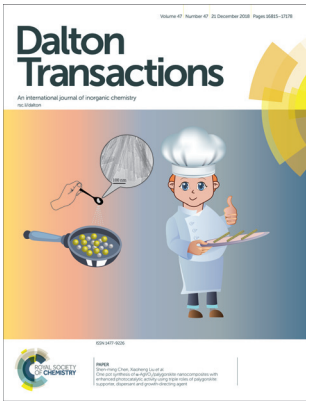
IN THIS ISSUE

ISSN 1477-9226 CODEN DTARAF 47(47) 16815–17178 (2018)



Cover
See Shen-ming Chen, Xiaoheng Liu *et al.*, pp. 16855–16861.

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Inside cover
See Manickam Minakshi, Maximilian Fichtner *et al.*, pp. 16828–16834.

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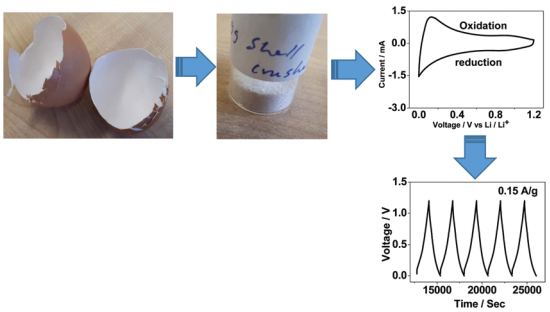

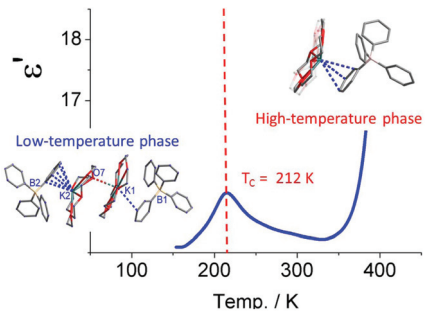

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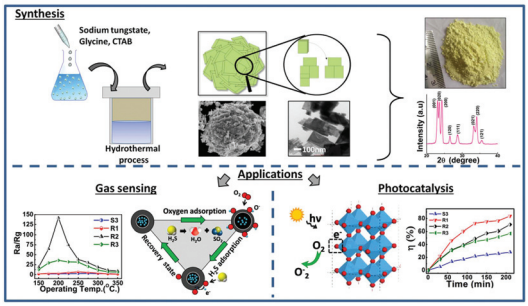

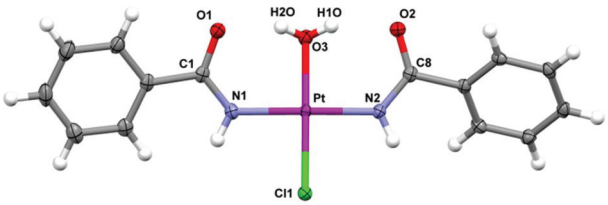

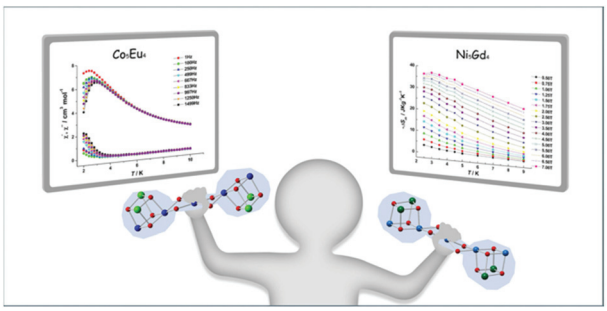

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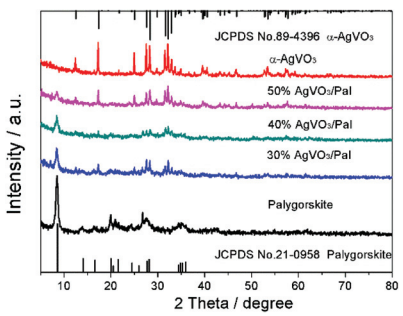

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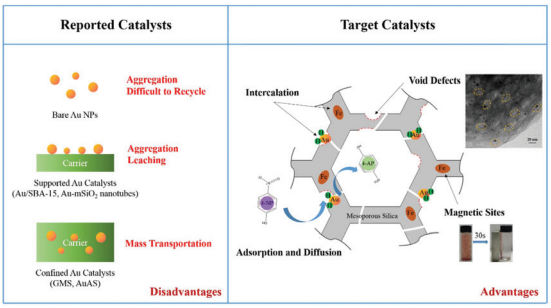
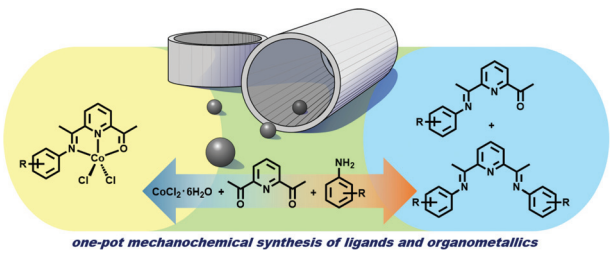


In situ intercalation of Au nanoparticles and magnetic γ-Fe_2O_3 in the walls of MCM-41 with abundant void defects for highly efficient reduction of 4-nitrophenol and organic dyes

Shijian Zhou, Weiming Jin, Yun Ding, Bo Shao, Bangbang Wang, Xu Hu and Yan Kong*

Au nanoparticles and magnetic γ-Fe_2O_3 are intercalated *in situ* in the walls of MCM-41, and abundant void defects appeared during the assembly process.

16876

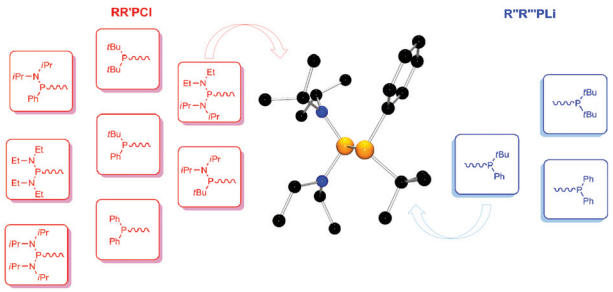


Mechanochemical routes for the synthesis of acetyl- and bis-(imino)pyridine ligands and organometallics

Thomas E. Shaw, Lorianne R. Shultz, Louiza R. Garayeva, Richard G. Blair, Bruce C. Noll and Titel Jurca*

Mechanochemical synthesis, conducted by ball milling, affords rapid access to acetyl- and bis(imino)pyridine ligands and acetyl(imino)pyridine cobalt species.

16885

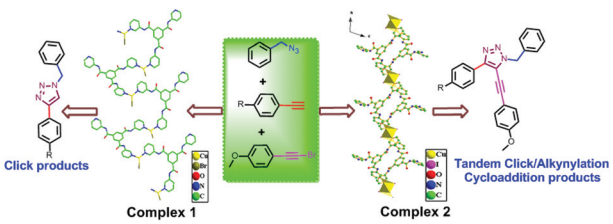


Symmetrical and unsymmetrical diphosphanes with diversified alkyl, aryl, and amino substituents

Natalia Szynkiewicz, Łukasz Ponikiewski and Rafał Grubba*

Synthesis, classification, and analysis of the structural, electronic and spectroscopic properties of a series of novel diphosphanes with diversified substituents.

16895



Cu(I) coordination polymers (CPs) as tandem catalysts for three-component sequential click/alkynylation cycloaddition reaction with regiocontrol

Xiaoqing Guo, Chao Huang,* Haiyan Yang, Zhichao Shao, Kuan Gao, Na Qin, Gaoxiang Li, Jie Wu* and Hongwei Hou*

Two synthesized Cu(I)-based CPs could catalyze the three-component sequential click/alkynylation cycloaddition reaction with high regioselectivity.

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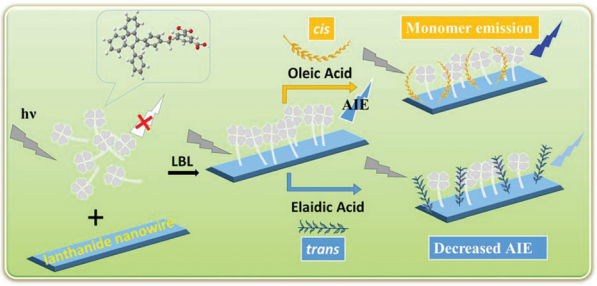

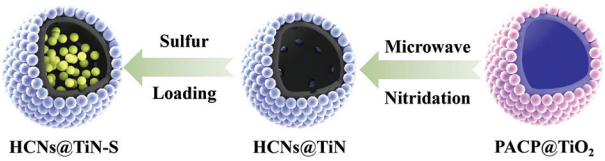

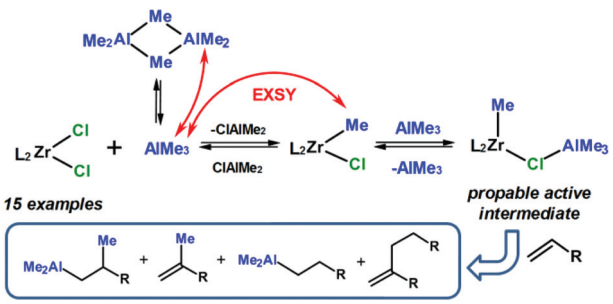

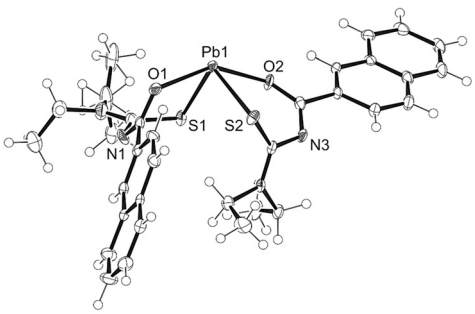

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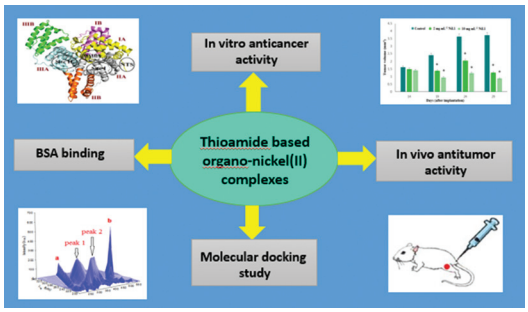
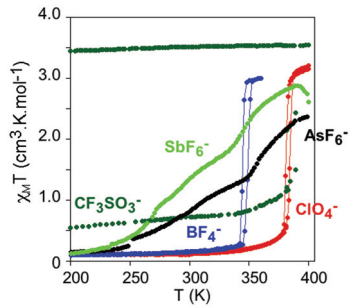


In vitro and *in vivo* antiproliferative activity of organo-nickel SCS-pincer complexes on estrogen responsive MCF7 and MC4L2 breast cancer cells. Effects of amine fragment substitutions on BSA binding and cytotoxicity

M. Hosseini-Kharat,* D. Zargarian,* A. M. Alizadeh,* K. Karami, M. Saeidifar, S. Khalighfard, L. Dubrulle, M. Zakariazadeh, J.-P. Cloutier and Z. Sohrabijam

A family of organonickel complexes has been prepared, fully characterized, and tested for their antiproliferative activity against estrogen-responsive human breast cancer cells (MCF7).

16958

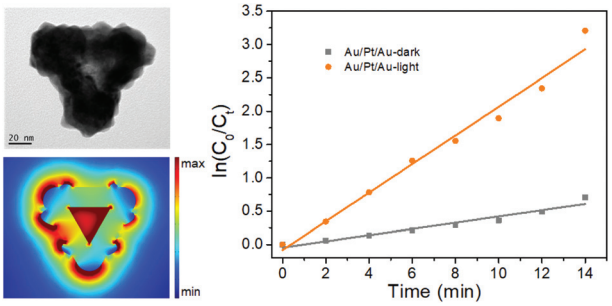


Spin-crossover compounds based on iron(II) complexes of 2,6-bis(pyrazol-1-yl)pyridine (bpp) functionalized with carboxylic acid and ethyl carboxylic acid

Víctor García-López, Mario Palacios-Corella, Alexandre Abhervé, Isaac Pellicer-Carreño, Cédric Desplanches, Miguel Clemente-León* and Eugenio Coronado*

New salts of the iron(II) bppCOOH and bppCOOEt spin crossover complexes have been studied.

16969

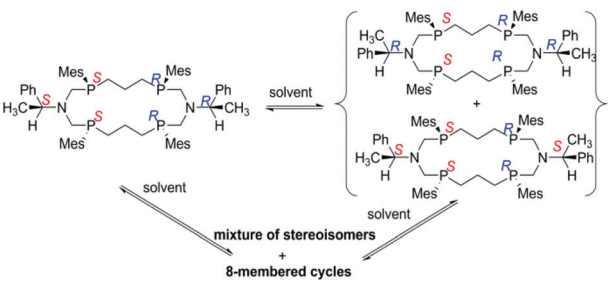


Preparation of bimetallic Au/Pt nanotriangles with tunable plasmonic properties and improved photocatalytic activity

Liang Ma,* Si-Jing Ding and Da-Jie Yang

We prepared hollow Au/Pt/Au nanotriangles with high visible light absorption, a strong tip- and center-focused local field, and superior photocatalytic activity.

16977



Chiral [16]-ane P_4N_2 macrocycles: stereoselective synthesis and unexpected intermolecular exchange of endocyclic fragments

E. I. Musina,* R. N. Naumov, K. B. Kanunnikov, A. B. Dobrynin, S. Gómez-Ruiz, P. Lönnecke, E. Hey-Hawkins, A. A. Karasik and O. G. Sinyashin

An unprecedent intermolecular exchange of endocyclic aminogroups bearing chiral substituents in "one-pot" synthesized chiral 16-membered tetrakisphosphines is discussed.

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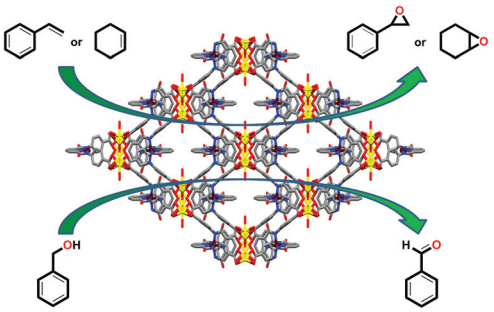

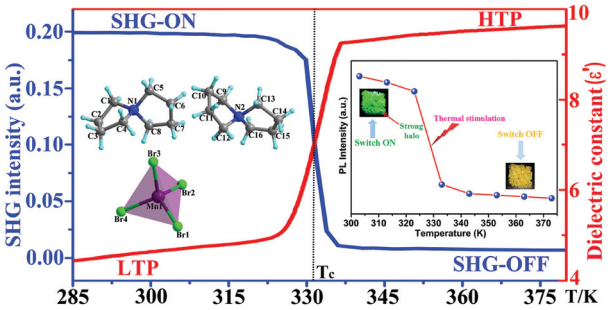

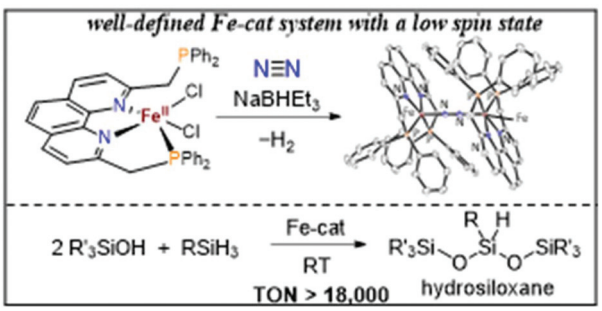

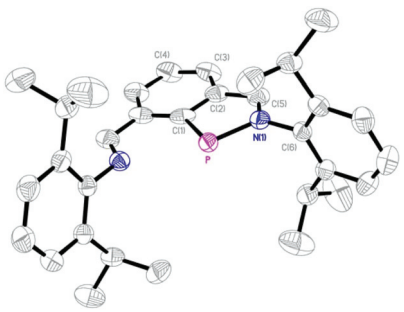

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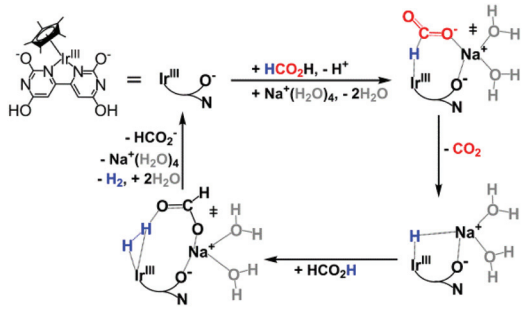
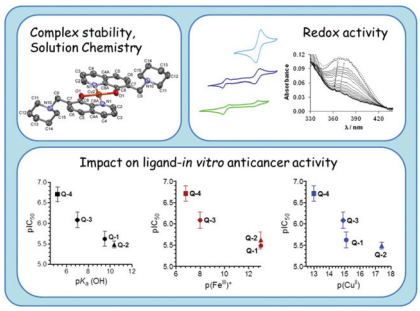


Mechanistic insights into HCO_2H dehydrogenation and CO_2 hydrogenation catalyzed by Ir(Cp*) containing tetrahydroxy bipyrimidine ligand: the role of sodium and proton shuttle

Tanakorn Wonglakhon and Panida Surawatanawong*

Catalytic HCO_2H dehydrogenation by Ir(Cp*) tetrahydroxy bipyrimidine is influenced not only by the protonation states but also by the involvement of Na^+ and the availability of HCO_2H as a proton shuttle.

17032

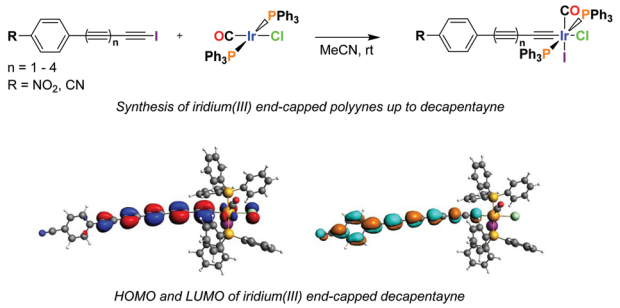


Impact of copper and iron binding properties on the anticancer activity of 8-hydroxyquinoline derived Mannich bases

Veronika F. S. Pape, Nóra V. May, G. Tamás Gál, István Szatmári, Flóra Szeri, Ferenc Fülöp, Gergely Szakács* and Éva A. Enyedy*

A relationship between pK_a values, binding abilities to copper(II) and iron(III) and anticancer activity of 8-hydroxyquinoline derived Mannich bases.

17046

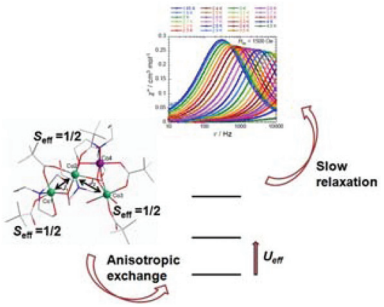


Selective synthesis of iridium(III) end-capped polyynes by oxidative addition of 1-iodopolyynes to Vaska's complex

Bartłomiej Pigulski, Agata Jarszak and Sławomir Szafert*

The reaction of bis(triphenylphosphine)iridium(I) carbonyl chloride (Vaska's complex) with a series of 1-iodopolyynes (**1**-C_nI and **2**-C_nI) gave σ-polyynyl iridium(III) complexes with general formula $R(C{\equiv}C)_nIr(PPh_3)_2(Cl)(I)(CO)$.

17055



Slow magnetization dynamics in Co(II)/Co(III) triethanolamine/pivalate complexes

Carolina Sarto, Mathieu Rouzières, Jun-Liang Liu, Heiko Bamberger, Joris van Slageren, Rodolphe Clérac and Pablo Alborés*

We report a combined computational and experimental study of SMM properties of two new pivalate cobalt complexes.

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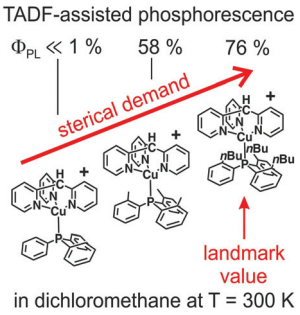

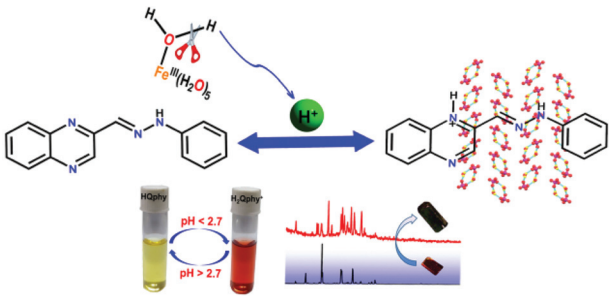

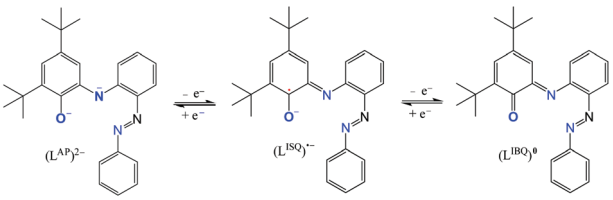

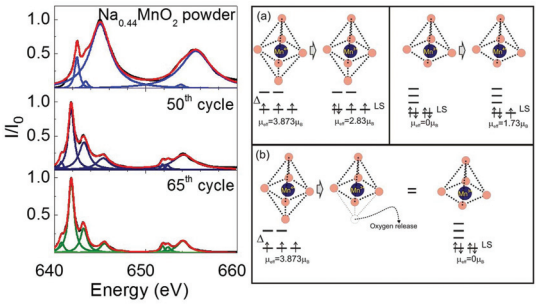

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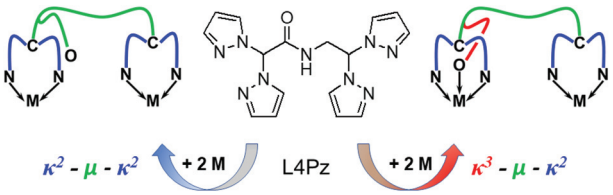
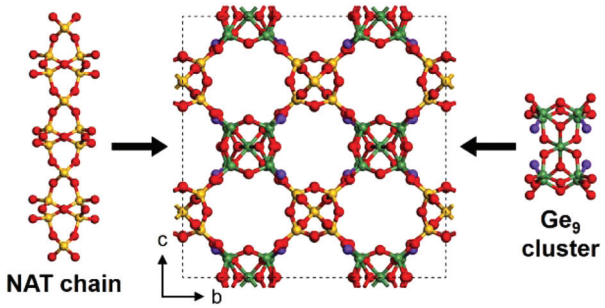


Multiple coordination modes of a new ditopic bis(pyrazolyl)methane-based ligand

John B. Coulton, Aramis C. Smith, Kraig A. Wheeler and Radu F. Semeniuc*

A new ditopic bis(pyrazolyl)methane ligand can coordinate to two metallic centers in either a $\kappa^2-\mu-\kappa^2$ or a $\kappa^3-\mu-\kappa^2$ mode.

17122

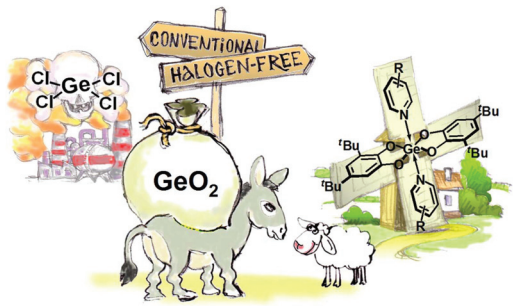


An open-framework silicogermanate regularly constructed from natrolite zeolite chains and $Ge_9O_{18}(OH)_4$ clusters

Donghui Jo, Wanuk Choi, Jiho Shin and Suk Bong Hong*

An open-framework silicogermanate denoted as PST-18, whose structure is built from the natrolite chain and the Ge_9 cluster, has been synthesized.

17127

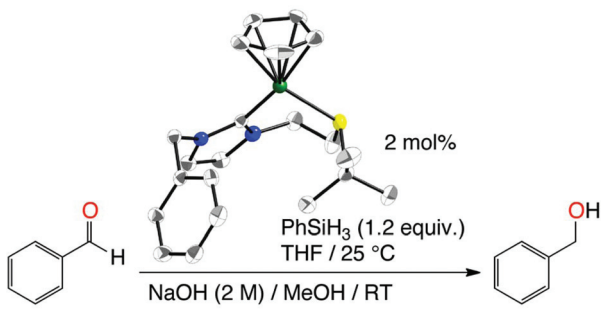


Halogen-free GeO_2 conversion: electrochemical reduction *vs.* complexation in $(DTBC)_2Ge[Py(CN)_n]$ (n = 0...2) complexes

Elena N. Nikolaevskaya, Evgeniya A. Saverina, Alyona A. Starikova, Amel Farhati, Mikhail A. Kiskin, Mikhail A. Syroeshkin,* Mikhail P. Egorov and Viatcheslav V. Jouikov*

3,5-di-*tert*-Butylcatecholate (DTBC) germanium complexes $(DTBC)_2Ge[Py(CN)_n]_2$ (n = 0...2) have been synthesized from GeO_2, DTBC and $Py(CN)_n$.

17134



Synthesis, characterization, and catalytic application in aldehyde hydrosilylation of half-sandwich nickel complexes bearing (κ^1-*C*)- and hemilabile (κ^2-*C*,*S*)-thioether-functionalised NHC ligands

Franck Ulm, Amalia I. Poblador-Bahamonde, Sabine Choppin, Stéphane Bellemin-Laponnaz, Michael J. Chetcuti,* Thierry Achard* and Vincent Ritleng*

Ni complexes bearing thioether-functionalised NHCs; hemilabile ligands for catalytic aldehyde hydrosilylation.

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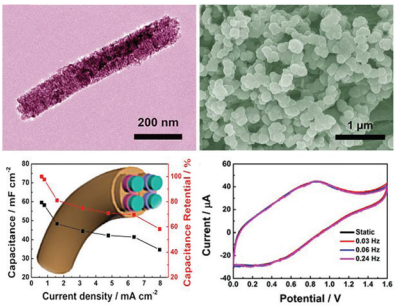
A high performance asymmetric supercapacitor based on *in situ* prepared $CuCo_2O_4$ nanowires and PPy nanoparticles on a two-ply carbon nanotube yarn

X. Liang, Q. Wang,* Y. Ma and D. Zhang*

A two-ply CNT yarn asymmetric supercapacitor was fabricated by assembling a $CuCo_2O_4$ nanowire positive electrode and a PPy nanoparticle negative electrode. The full cell exhibits a high specific capacitance of 59.55 mF cm^{-2} and a high energy density of 0.02 mW h cm^{-2}.

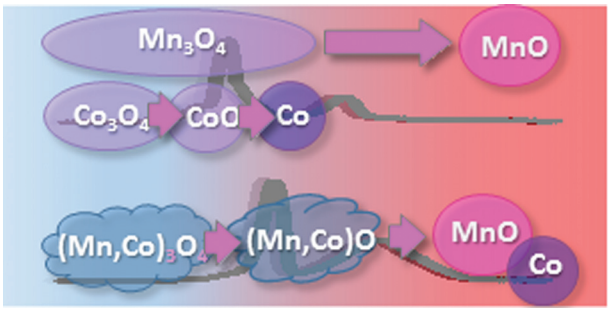


17153

Reduction of double manganese–cobalt oxides: *in situ* XRD and TPR study

Olga A. Bulavchenko,* Evgeny. Y. Gerasimov and Tatyana N. Afonasenko

The mechanism of reduction of double Mn–Co oxides with hydrogen differs significantly from the processes occurring on simple oxides.



17160

Strategic synthesis of $[Cu_2]$, $[Cu_4]$ and $[Cu_5]$ complexes: inhibition and triggering of ligand arm hydrolysis and self-aggregation by chosen ancillary bridges

Manisha Das, Angelos B. Canaj, Valerio Bertolasi, Mark Murrie and Debashis Ray*

A new family of Cu^{II}-based coordination aggregates is synthesized from HL1 with $Cu(ClO_4)_2{\cdot}6H_2O$ in the absence and presence of a group of carboxylates.